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EXAMINER	
AMARI, ALESSANDRO V	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/648,525	Applicant(s) DAVIS ET AL.	
	Examin r Alessandro V. Amari	Art Unit 2872	

-- The MAILING DATE of this c mmunication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 05 May 2004.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-37,39,40,42-47,49-54,56,58-68 and 70-72 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-37,39,40,42-47,49-54,56,58-68 and 70-72 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05 May 2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 8, 9, 11, 12, 15, 32-34, 36, 43-45, 47, 58-62, 64, 66-68, 71 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li US Patent 5,841,918 in view of Feced et al US Patent 6,445,852.

In regard to claims 1, 32, 58, 71 and 72, Li teaches (see Figures 1 and 2a-2c) a tunable optical filter or a method for selectively filtering an optical wavelength band from an input light comprising: providing a first optical element or first optical waveguide including a first reflective element (14) for receiving light and reflecting a first wavelength band of the light centered at a first reflection wavelength, the first reflective element characterized by a first reflective filter function as described in column 3, lines

45-54 and as shown in Figure 2a; and providing a second optical element or second optical waveguide, optically connected to the first optical element to receive the reflected first wavelength band of the light, including a second reflective element (16) for reflecting a second wavelength band of the light centered at a second reflection wavelength, the second reflective element characterized by a second reflective filter function; and the first wavelength band and the second wavelength band overlap spectrally as described in column 4, lines 1-18 and as shown in Figures 2a-2c.

Regarding claims 2 and 59, Li discloses that one of the first and second optical elements or optical waveguides is tunable to change the corresponding first or second reflection wavelength and maintain substantial alignment of the first and second reflection wavelengths as described in column 3, lines 58-67 and column 4, lines 1-18 and as shown in Figures 2a-2c.

Regarding claims 3 and 60, Li discloses that both of the first and second optical elements or optical waveguides is tunable to change each of the first and second reflection wavelengths and maintain substantial alignment of the first and second wavelengths as described in column 3, lines 58-67 and column 4, lines 1-18 and as shown in Figures 2a-2c.

Regarding claims 4 and 61, Li discloses (see Figure 1) an optical directing device (12) optically connected to the first and second optical elements or optical waveguides; the optical directing device directing the light to the first reflective element, directing the first wavelength band reflected from the first reflective element to the second reflective element, and directing the second wavelength band reflected from the second reflective

element to the output port of the optical directing device as shown in Figure 1 and as described in column 3, lines 41-59.

Regarding claim 5, Li discloses that the optical directing device comprises at least one circulator as described in column 3, line 16.

Regarding claim 6, Li discloses (see Figure 6) that the circulator receives the light at a first port of the circulator, directs the light to the first reflective element through a second port of the circulator, receives the first wavelength band at the second port, directs the first wavelength band to the second reflective element through a third port of the circulator, receives the second wavelength band at the third port, and directs the second wavelength band to a fourth port of the circulator as described in column5, lines 40-61.

Regarding claim 8, Li discloses that the first reflection wavelength and the second reflection wavelength are substantially aligned to reflect a portion of the aligned wavelength bands to an output port as described in column 4, lines 1-18.

Regarding claims 9, 44 and 62, Li discloses that one of the first and second reflective filter functions comprises one of a Gaussian, rectangular and ramp shape as shown in Figure 2a, 2b.

Regarding claim 11 and 36, Li discloses that the first reflection wavelength is offset a predetermined spacing from the second reflection wavelength or wherein tuning one of the first and second reflective elements comprises offsetting a first reflection wavelength and a second reflection wavelength by a predetermined spacing as shown in Figures 2a-2c and as described in column 4, lines 1-13.

Regarding claims 12 and 45, Li discloses that at least one of the first and second optical elements have an outer cladding and an inner core disposed therein, wherein the at least one of the first and second reflective element comprises a grating disposed in a longitudinal section of the inner core as described in column 3, lines 16-18. Although the prior art does not specifically disclose the claimed outer cladding, inner core with the grating disposed in a longitudinal section of the inner core, this feature is seen to be an inherent teaching of that device since the waveguide or fiber Bragg grating is disclosed and it is apparent that the grating must have a core and cladding and gratings are written in a longitudinal section of cores.

Regarding claims 15, 47 and 66, Li discloses that at least one of the first and second optical elements or optical waveguides is an optical fiber as described in column 3, lines 16-18.

Regarding claim 33, Li discloses that tuning one of the first and second reflective elements includes compressing the one of the first and second optical elements as described in column 3, lines 19-24.

Regarding claim 34, Li discloses that tuning one of the first and second reflective elements comprises substantially aligning a first reflection wavelength and the second reflection wavelength as described in column 4, lines 1-18.

Regarding claim 43, Li discloses tuning the other one of the first and second reflective elements to overlap spectrally the first wavelength band and the second wavelength band as shown in Figure 2c.

Regarding claim 64, Li teaches that at least one of the first and second reflective elements includes a Bragg grating as described in column 3, lines 14-18.

Regarding claim 67, Li discloses a compression device that axially compresses at least one of the first and second tunable optical waveguides, wherein at least one of the respective first and second reflective elements is disposed along an axial direction of the respective first and second optical waveguides as described in column 3, lines 19-40.

Regarding claim 68, Li discloses that the shape of the first reflective filter function is different than the shape of the second reflective filter function as described in column 3, lines 45-67 and as shown in Figures 2a and 2b.

However, in regard to claims 1 and 32, Li does not teach that at least one of the first reflective filter function and the second reflective filter function is not substantially flat over a substantial portion of the respective first or second reflective filter function or in regard to claim 58, that the first and second reflection wavelength are substantially the same or in regard to claim 71 that at least one of the first and second reflective filter function is not substantially constant over a substantial portion of the first and second reflective filter function or in regard to claim 72, that at least one of the first and second reflective filter function is not substantially rectangular or square in shape over a substantial portion of the first and second reflective filter function.

In regard to claims 1, 32, 58, 71 and 72, Feced et al teaches that at least one of the first reflective filter function and the second reflective filter function is not substantially flat over a substantial portion of the respective first or second reflective

filter function or are substantially the same or that at least one of the first and second reflective filter function is not substantially constant over a substantial portion of the first and second reflective filter function or that at least one of the first and second reflective filter function is not substantially rectangular or square in shape over a substantial portion of the first and second reflective filter function as described in column 11, lines 63-67 and column 12, lines 1-18.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a non-continuous or non-monotonic filter function as taught by Feced et al for the filter of Li in order to provide for filter characteristics that are well-matched to ideal filter responses for a wide variety of applications.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li U.S. Patent 5,841,918 in view of Feced et al US Patent 6,445,852 and further in view of Kringlebotn et al. U.S. Patent 6,097,487.

Regarding claim 7, Li in view of Feced et al teaches the invention as set forth above but does not teach that said optical directing device comprises an optical coupler. Kringlebotn et al. teaches the optical directing device comprises an optical coupler (4) as shown in Figure 5 and as described in column 5, lines 52-67 and column 6, lines 1-10. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize couplers as taught by Kringlebotn et al. in the optical filter of Li in view of Feced et al in order to optically direct the signals in the filter device.

5. Claims 10, 35 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li U.S. Patent 5,841,918 in view of Feced et al US Patent 6,445,852 and further in view of Kewitsch et al. U.S. Patent 6,236,782.

Regarding claims 10, 35, and 63, Li in view of Feced et al teaches the invention as set forth above but does not teach that one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized. Kewitsch et al. teaches that one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized as described in column 10, lines 39-67 and column 11, lines 1-10. It would have been obvious to one having ordinary skill in the art at the time the invention was made to apodize the reflective elements of Li in view of Feced et al as taught by Kewitsch et al. in order to reduce grating sidelobes and eliminate adjacent channel crosstalk.

6. Claims 13, 14, 16-19, 37, 46, 49, 50, 51, 53, 54, 56 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li U.S. Patent 5,841,918 in view of Feced et al US Patent 6,445,852 and further in view of Fernald et al. U.S. Patent 6,229,827.

Regarding claims 13, 14, 16-19, 37, 46, 49, 50, 51, 53, 54, 56 and 65, Li in view of Feced et al teaches the invention as set forth above and regarding claim 49, Li teaches that both of the first and second optical waveguides is tunable to change each of the respective first and second reflection wavelengths as described in column 3, lines 19-24.

Regarding claim 50, Li teaches that the first and second reflection wavelengths are substantially aligned as described in column 4, lines 1-18.

Regarding claim 51, Li teaches that one of the first and second reflective filter functions comprises one of a Gaussian, rectangular and ramp shape as shown in Figures 2a-2c.

Regarding claim 53, Li teaches that the first reflection wavelength is offset a predetermined spacing from the second reflection wavelength as shown in Figures 2a and 2b.

Regarding claim 54, Li teaches that at least one of the first and second reflective elements includes a Bragg grating as described in column 3, lines 14-18.

However, regarding claim 13, Li does not teach that at least one of the first and second optical elements comprises an optical fiber, having a reflective element written therein; and a tube, having the optical fiber and the reflective element encased therein along a longitudinal axis of the tube, the tube being fused to at least a portion of the fiber or regarding claims 14, 46 and 65, that at least one of the first and second optical elements or waveguides has an outer transverse dimension of at least 0.3 mm or regarding claim 16, a compressing device that axially compresses at least one of the first and second optical elements wherein at least one of the first and second reflective elements is disposed along an axial direction of each respective first and second optical elements or in regard to claim 17, that first and second compressing devices for compressing axially the first and second optical elements or in regard to claim 18 that a straining device for tensioning axially the first optical element to tune the first reflective

element, wherein the first reflective element is disposed along an axial direction of the first optical element as disclosed or regarding claim 19, a heating element for varying the temperature of the first optical element to tune the first reflective element to reflect the selected first wavelength band. Nor regarding claim 37 does Li teach wherein the at least one of the first and second optical waveguides has outer dimensions along perpendicular axial and transverse directions, a first portion of the at least one of the first and second optical waveguides having an outer dimension being at least 0.3 mm along said transverse direction, at least a portion of the first portion having a transverse cross-section which is continuous and comprises a substantially homogeneous material; and the at least one of the first and second optical waveguides being axially strain compressed so as to change the at least one of the first and second reflection wavelengths. Regarding claim 56, Li does not teach that the optical filter further includes a compression device that axially compresses at least one of the first and second optical waveguides, wherein at least one of the respective first and second reflective elements is disposed along an axial direction of the respective first and second tunable elements.

Regarding claim 13, Fernald et al. teaches that (see Figure 1) at least one of the first and second optical elements comprises: an optical fiber (10), having a reflective element (12) written therein; and a tube (20), having the optical fiber and the reflective element encased therein along a longitudinal axis of the tube, the tube being fused to at least a portion of the fiber as described in column 4, lines 23-25.

Regarding claims 14, 46 and 65, Fernald et al. also teaches that at least one of the first and second optical elements or waveguides has an outer transverse dimension of at least 0.3 mm as described in column 1, lines 60-61.

Regarding claims 16 and 56, Fernald et al. also discloses a compressing device for compressing simultaneously and axially the first and second tunable optical elements or the tunable optical waveguide, wherein each of the first and second reflective elements are disposed along an axial direction of each respective first and second tunable element as described in column 1, lines 57-67 and column 2, lines 1-3 and lines 42-44.

Regarding claim 17, Fernald et al teaches first and second compressing devices for compressing axially the first and second optical elements respectively as described in column 1, lines 57-67 and column 2, lines 1-4.

Regarding claim 18, Fernald et al. teaches a straining device for tensioning axially the first optical element to tune the first reflective element, wherein the first reflective element is disposed along an axial direction of the first optical element as disclosed in column 2, lines 1-3.

Regarding claim 19, Fernald et al teaches a heating element for varying the temperature of the first optical element to tune the first reflective element to reflect the selected first wavelength band as described in column 1, lines 41-49.

In regard to claim 37, Fernald et al. teaches that the at least one of the first and second optical waveguides has outer dimensions along perpendicular axial and transverse directions, a first portion of the at least one of the first and second optical

waveguides having an outer dimension being at least 0.3 mm along said transverse direction as described in column 1, lines 60-61, at least a portion of the first portion having a transverse cross-section which is continuous and comprises a substantially homogeneous material as described in column 1, lines 65-67; and the at least one of the first and second optical waveguides being axially strain compressed so as to change the at least one of the first and second reflection wavelengths as described in column 2, lines 1-3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the compression tuned grating as taught by Fernald et al. in the optical system of Li in view of Feced et al in order to provide for precise tuning of the filter.

7. Claims 22-28, 30 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li US Patent 5,841,918 in view of Fernald et al US Patent 6,229,827.

In regard to claim 22, Li teaches (see Figure 1, 2a-2c) a tunable optical filter comprising a first reflective element (14) for receiving light and reflecting a first wavelength band of the light centered at a first reflection wavelength, the first reflective element characterized by a first reflective filter function as described in column 3, lines 45-54 and as shown in Figure 2a; and providing a second optical element or second optical waveguide, optically connected to the first optical element to receive the reflected first wavelength band of the light, including a second reflective element (16) for reflecting a second wavelength band of the light centered at a second reflection

wavelength, the second reflective element characterized by a second reflective filter function as shown in Figures 2a and 2b and as described in column 4, lines 1-13.

Regarding claim 23, Li teaches that the first and second reflective elements include a respective Bragg grating as described in column 3, lines 14-18.

Regarding claim 25, Li teaches that an optical directing device (12) is connected to the optical waveguides, the optical directing device directing the light to the first reflective element, directing the first wavelength band reflected from the first reflective element to the second reflective element as shown in Figures 1, 3-6.

Regarding claim 26, Li teaches that the optical directing device is an optical circulator as described in column 3, lines 14-16.

Regarding claim 28, Li teaches that the first and second reflection wavelengths are substantially aligned as described in column 4, lines 1-18.

Regarding claim 30, Li teaches that the first and second reflection wavelengths are offset by a predetermined spacing as shown in Figures 2a-2c.

Regarding claim 70, Li teaches that the first wavelength band and the second wavelength band overlap spectrally as shown in Figures 2a-2c.

In regard to claim 22, Li does not teach that the tunable optical waveguide comprises a first inner core having the first reflective element disposed therein and a second inner core having the second reflective element disposed therein. Regarding claim 24, Li does not teach that the tunable optical waveguide has an outer transverse dimension of at least 0.3 mm nor regarding claim 25 does Li teach that the optical directing device is connected to the first and second inner cores nor regarding claim 27

does Li teach further including a compressing device for axially compressing the tunable optical waveguide to tune the first and second reflective elements.

Regarding claim 22, Fernald et al teaches (see Figure 9, 10, 11) a tuneable optical waveguide, the optical waveguide comprising a first inner core with a first reflective element disposed therein, a second inner core having a second reflective element disposed therein as described in column 11, lines 46-55.

Regarding claim 24, Fernald et al. also teaches that at least one of the first and second optical elements or waveguides has an outer transverse dimension of at least 0.3 mm as described in column 1, lines 60-61.

Regarding claim 27, Fernald et al. also discloses a compressing device for compressing simultaneously and axially the first and second tunable optical elements or the tunable optical waveguide, wherein each of the first and second reflective elements are disposed along an axial direction of each respective first and second tunable element as described in column 1, lines 57-67 and column 2, lines 1-3 and lines 42-44.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the compression tuned grating as taught by Fernald et al. in the optical system of Li in order to provide for precise tuning of the filter.

8. Claims 29, 39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li US Patent 5,841,918 in view of Fernald et al US Patent 6,229,827 and further in view of Feced et al US Patent 6,445,852.

Regarding claims 29, 39 and 42, Li in view of Fernald et al teaches the invention as set forth above and regarding claim 39, Li teaches that one of the first and second

reflective filter functions comprises one of a Gaussian, rectangular and ramp shape as shown in Figures 2a-2c.

Regarding claim 42, Li teaches that the shape of the first reflective filter function is different than the shape of the second reflective filter function as shown in Figures 2a-2c.

However, regarding claim 29, Li does not teach that at least one of the first reflective filter function and the second reflective filter function is not substantially flat over a substantial portion of the respective first or second reflective filter function.

Regarding claim 29, Feced et al teaches that at least one of the first reflective filter function and the second reflective filter function is not substantially flat over a substantial portion of the respective first or second reflective filter functions as described in column 11, lines 63-67 and column 12, lines 1-18.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to non-continuous or non-monotonic filter function as taught by Feced et al for the filter of Li in view of Fernald et al in order to provide for filter characteristics that are well-matched to ideal filter responses for a wide variety of applications.

9. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li U.S. Patent 5,841,918 in view of Feced et al US Patent 6,445,852 and further in view of Putnam et al. U.S. Patent 6,310,990.

Regarding claims 20 and 21, Li in view of Feced et al teaches the invention as set forth above but does not further teach a first compressing device for axially

compressing at least the first tunable optical element to tune the first reflective element, responsive to a displacement signal, wherein the first reflective element is disposed axially along the first tunable element; and a displacement sensor, responsive to the compression of the first tunable optical element, for providing the displacement signal indicative of the change in the displacement of the first tunable optical element or wherein the displacement sensor includes a capacitance sensor coupled to the first tunable optical element for measuring the change in the capacitance that depends on the change in the displacement of the first tunable optical element.

Regarding claims 20 and 21, Putnam et al. does teach (see Figure 2) a first compressing device (50) for axially compressing at least the first tunable optical element to tune the first reflective element, responsive to a displacement signal, wherein the first reflective element is disposed axially along the first tunable element as shown in Figure 1; and a displacement sensor (24), responsive to the compression of the first tunable optical element, for providing the displacement signal indicative of the change in the displacement of the first tunable optical element as described in column 5, lines 51-67 and column 6, lines 1-6 or wherein the displacement sensor includes a capacitance sensor (72, 74) coupled to the first tunable optical element for measuring the change in the capacitance that depends on the change in the displacement of the first tunable optical element as described in column 6, lines 1-6.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the optical structure as taught by Putnam et al. in the

optical filter system of Li in view of Feced et al in order to provide feedback control for the tuning of the optical filter.

10. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over are rejected under 35 U.S.C. 103(a) as being unpatentable over Li U.S. Patent 5,841,918 in view Fernald et al U.S. Patent 6,229,827 and further in view of Putnam US Patent 6,310,990.

In regard to claim 31, Li in view Fernald et al teaches the invention as set forth above but does not teach a first compressing device for axially compressing at least the first tunable optical element to tune the first reflective element, responsive to a displacement signal, wherein the first reflective element is disposed axially along the first tunable element; and a displacement sensor, responsive to the compression of the first tunable optical element, for providing the displacement signal indicative of the change in the displacement of the first tunable optical element or wherein the displacement sensor includes a capacitance sensor coupled to the first tunable optical element for measuring the change in the capacitance that depends on the change in the displacement of the first tunable optical element.

Regarding claim 31, Putnam et al. does teach (see Figure 2) a first compressing device (50) for axially compressing at least the first tunable optical element to tune the first reflective element, responsive to a displacement signal, wherein the first reflective element is disposed axially along the first tunable element as shown in Figure 1; and a displacement sensor (24), responsive to the compression of the first tunable optical element, for providing the displacement signal indicative of the change in the

displacement of the first tunable optical element as described in column 5, lines 51-67 and column 6, lines 1-6 or wherein the displacement sensor includes a capacitance sensor (72, 74) coupled to the first tunable optical element for measuring the change in the capacitance that depends on the change in the displacement of the first tunable optical element as described in column 6, lines 1-6.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the optical structure as taught by Putnam et al. in the optical filter system of Li in view of Fernald et al in order to provide feedback control for the tuning of the optical filter.

11. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li US Patent 5,841,918 in view of Fernald et al US Patent 6,229,827 in view of Feced et al US Patent 6,445,852 and further in view of Kewitsch et al US Patent 6,236,782.

Regarding claim 40, Li in view of Fernald et al and further in view of Feced et al teaches the invention as set forth above but does not teach that one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized.

Regarding claim 40, Kewitsch et al. teaches that one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized as described in column 10, lines 39-67 and column 11, lines 1-10.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to apodize the reflective elements of Li in view of Fernald et al and

further in view of Feced et al as taught by Kewitsch et al. in order to reduce grating sidelobes and eliminate adjacent channel crosstalk.

12. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li U.S. Patent 5,841,918 in view of Feced et al US Patent 6,445,852 in view of Fernald et al U.S. Patent 6,229,827 further in view of Kewitsch et al. U.S. Patent 6,236,782.

Regarding claim 52, Li in view of Feced et al and further in view of Fernald et al teaches the invention as set forth above but does not teach that one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized.

Regarding claims 40 and 52, Kewitsch et al. teaches that one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized as described in column 10, lines 39-67 and column 11, lines 1-10.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to apodize the reflective elements of Li in view of Feced et al and further in view of Fernald et al as taught by Kewitsch et al. in order to reduce grating sidelobes and eliminate adjacent channel crosstalk.

Response to Arguments

13. Applicant's arguments with respect to claims 1-21, 29, 31-37, 39, 40, 42-47, 49-54, 56, 58-68 and 70-72 have been considered but are moot in view of the new ground(s) of rejection.

The applicants argue in regard to claim 22, that the prior art, Li teaches away from an optical filter having a waveguide with two inner cores since Li teaches that the Bragg gratings are independently tuned to provide an optical filter that can tune both the wavelength and bandwidth of the filter. Furthermore, the applicants assert that even if the teaching of Li and Fernald were combined, the Applicants claimed invention would not result.

In response to this argument, the Examiner has every reason to believe that the combination of Li and Fernald would result in the claimed invention since Li teaches an independently tunable optical filter and Fernald teaches an independently tunable optical filter with two inner cores. Furthermore, the applicant does not explain why the independent tuning of the Bragg grating of Li teaches away from including a tuneable waveguide having two inner cores. Furthermore, the applicant does not provide a rationale or argument for his assertion that even if the teaching of Li and Fernald were combined the claimed invention would not result.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (571) 272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ava
22 June 2004

MARK A. ROBINSON
PRIMARY EXAMINER